

CLAIMS

1. A tube coupling comprising a coupling body having a throughway open at one end to receive a tube, an end cap in
5 screw-threaded engagement with the coupling body to move between initial and advanced positions along the coupling body and having an opening for the tube and an internal cam surface tapering towards the tube opening, a collet in the end cap engaging the cam surface to lock a tube in the cap
10 with movement of the collet outwardly of the cap and to release the tube when depressed inwardly of the cap, and stop means in the coupling body to limit movement of the collet inwardly of the end cap, the initial position of the end cap on the coupling body allowing a tube to be inserted
15 and locked in the end cap by the collet and to be released by depressing the collet inwardly of the cap and the advanced position of the end cap holding the collet adjacent the stop means in the coupling body to prevent release of the tube; characterised in that detent means are provided
20 acting between the cap and coupling body to provide resistance to movement of the cap along the coupling body until the cap reaches said initial position on the coupling body and to allow said further movement of the cap to the advanced position.

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2. A tube coupling as claimed in claim 1, wherein the coupling body has an external screw-threaded portion extending along the coupling body from said one end and the cap has an open mouth to encircle the coupling body and a
30 screw-threaded portion extending from a location adjacent the open mouth internally along the end cap to engage with the screw-threaded portion on the coupling body.

3. A tube coupling as claimed in claim 2, wherein the
detent means are provided on the coupling body adjacent the
end of the screw-thread remote from said open end of the
coupling body and within the cap between the screw-thread
5 and mouth of the cap.

4. A tube coupling as claimed in claim 3, wherein the
detent means comprise a flexible diaphragm encircling one of
the coupling body and the end cap and an annular slot in the
10 other of the end cap and coupling body in which the
diaphragm is snap engaged in said initial position of the
cap on the coupling body, the slot having a width which
accommodates the travel of the cap along the coupling body.

15 5. A tube coupling as claimed in claim 4, wherein the
diaphragm is formed on the coupling body and the mouth of
the cap is formed with an inturned lip providing a
restricted opening of smaller diameter than the outer
diameter of the diaphragm and with an annular slot
20 encircling the inner side of the cap inwardly of the lip
into which the annular diaphragm can snap after being
deformed as it passes through the annular lip in the mouth
of the cap to define said initial position of the cap on the
coupling body and to hold the diaphragm in a deformed state
25 in engagement with the bottom of the slot to resist
withdrawal of the cap from the coupling body.

6. A tube coupling as claimed in claim 4, wherein the
annular slot tapers outwardly away from the lip into the cap
30 so that as the cap is advanced along the coupling body past
the diaphragm, the diaphragm can slide along and expand into

the deepening part of the slot to reduce the deformity imposed on the diaphragm.

7. A tube coupling as claimed in claim 6, wherein the slot
5 in the cap at its deeper end has an extended deeper slot into which the diaphragm can extend in the advanced position of the cap on the coupling body, the additional slot being sufficiently deep to accommodate the diaphragm without deformation.

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8. A tube coupling as claimed in claim 1, wherein the diaphragm is a single continuous diaphragm encircling the coupling body.

15 9. A tube coupling as claimed in claim 1, wherein the diaphragm comprises a series of segments extending around the coupling body.

10. A tube coupling as claimed in claim 4, wherein the
20 annular diaphragm is formed on a separate insert ring mounted on the coupling body.

11. A tube coupling as claimed in claim 10, wherein the
25 insert ring is a split ring mounted in a groove in the coupling body.

12. A tube coupling as claimed in claim 4, wherein the
coupling body is formed with an external upstanding annular
abutment located beyond the diaphragm from the screw-thread
30 on the coupling body to provide an end stop for restricting the extent to which the cap can be screwed onto the coupling

body to define said advanced position in which the cap can be screwed to lock a tube in the collet.

13. A tube coupling as claimed in claim 1, wherein the stop
5 means in the coupling body to restrict movement of the collet when depressed into the coupling body comprise a sealing arrangement located in the coupling body for a tube.

14. A tube coupling as claimed in claim 13, wherein the
10 sealing arrangement comprises a spacer ring encircling the throughway in the coupling body and an O ring seal located between the spacer ring and a shoulder formed in the throughway, the inner end of the collet being engageable with the spacer ring to restrict entry of the collet into
15 the coupling body.